



# PRIVATE LAW COMPLIANCE THROUGH SMART CONTRACTS?

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## ABSTRACT

*Smart contracts allow for automated compliance with contractual rules. They derive their “smartness” from an execution software that catches the most typical defaults and responds by mechanically triggering a compensation payment or another prearranged consequence. Through this self-enforcement mode, smart contracts are able to save time and effort that is associated with more customary rights enforcement mechanisms. Now, whereas compliance with in-house rules or corporate governance standards is common today, compliance with contract law only occurs on a voluntary basis. This might, however, change if businesses should be obliged to automatically meet customer claims through smart contracts. On the basis of a sample case, this article examines the pros and cons of smart consumer contracts and carves out the most suitable applications of smart contracts as a means to ensure private law compliance.*

## TABLE OF CONTENTS

I.	BACKGROUND: TRADITIONALLY LIMITED COMPLIANCE WITH PRIVATE LAWS	13
II.	SMART CONTRACTS AS A COMPLIANCE INSTRUMENT	14
III.	SAMPLE CASE: A SMART RAILWAY TRANSPORT CONTRACT	15
IV.	A CONTRIBUTION TO MARKET EFFICIENCY	16
V.	PRECONDITIONS TO AN EFFECTIVE SMART COMPENSATION SCHEME	17
VI.	CONCLUSION	17

## I. BACKGROUND: TRADITIONALLY LIMITED COMPLIANCE WITH PRIVATE LAWS

Compliance typically refers to the duty of companies to act in accordance with public law. Failure to comply is sanctioned by a civil penalty or by means of criminal law. During the last several decades, the importance and influence of compliance departments has significantly grown. At the same time, whether or not businesses choose to comply with the growing body of private law is still regarded a strategic decision rather than a straightforward legal duty. Private law is designed to be available as a state-provided system of rules for cases where conflicts of private interests cannot be otherwise resolved. Traditionally, however, the enforcement of private claims is relegated to the resolve of the very persons involved. In principle, the state does not care whether market participants eventually avail themselves of their rights. If they back off from making a claim, their opponent goes free, and the state is fine with that.

This regulatory approach gives remarkable leeway to the strategic decisions of repeat players.<sup>1</sup> They might voluntarily meet private law obligations as an aspect of a service strategy, but they can just as easily wait out any customer requests and count on a common aversion to bring legal action. In spite of these options, there is a strong incentive to choose the latter alternative. As market dynamics focus more on low prices rather than customer service, it becomes more difficult to stand one's ground in the market without cutting back on private law compliance.<sup>2</sup> This calculus notably applies in the field of consumer law, because the vast majority of consumers are extremely risk-averse and have little knowledge of their rights and no experience in enforcing them. Hence, there is a considerable threshold for consumers to take legal action.<sup>3</sup> Sure enough, most consumer rights are mandatory and, thus, cannot be contractually waived. However, the mandatory nature of consumer rights makes little difference in this decision paradigm, as mandatory rights are just as likely to remain unclaimed.

If claimants shy away from enforcing their rights, other market participants will sometimes step in and take on the job. The law of unfair commercial practices allows businesses to sue their rivals for injunction in cases of grossly unfair market behavior. However, competition rules are usually limited to correct the way customers are approached, whereas

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<sup>1</sup> A profound analysis of the advantages of repeat players compared to one-shotters is provided by Marc Galanter, *Why the "Haves" Come Out Ahead: Speculations on the Limits of Legal Change*, 9 L. SOC. REV. 95, 97-114 (1974).

<sup>2</sup> The economic concept for this kind of market dynamic is the famous market for lemons as described in George A. Akerlof, *The Market for "Lemons": Quality Uncertainty and the Market Mechanism*, 84 QUART. J. ECON. 488 (1970).

<sup>3</sup> See, e.g., Franziska Weber & Michael Fauré, *The Interplay Between Public and Private Enforcement in European Private Law: Law and Economics Perspective*, EUROP. REV. PRIV. L. 525, 533 (2015).

competitors can typically neither request proper contract performance nor demand compliance with other contractual rights of their customers.<sup>4</sup> In some jurisdictions, consumer organizations and trade commissions dispose over special procedural rights to bundle customer claims and enforce them collectively.<sup>5</sup> However, these mechanisms are actually employed in only a small fraction of possible cases, which makes them hardly more effective than the existing alternatives, namely easy-to-use court or conciliation procedures.<sup>6</sup> Thus, compliance with private law and with consumer rights in particular remains unalluring for most market participants. From a traditional viewpoint, this is an almost natural consequence of private law being private law. However, the more companies ignore claims out of sheer calculus, the more pressing becomes the question how private law can be rendered more meaningful for legal practice.

## II. SMART CONTRACTS AS A COMPLIANCE INSTRUMENT

Only recently, a potential solution for this problem has presented itself, the development of *smart contracts*. Smart contracts attempt to facilitate rights enforcement by automating contract execution, as well as the handling of typical impairments of performance. For this purpose, contracts are translated into computer code and digitally connected to some assets of the parties. Hence, the “contract machine” automatically detects changing circumstances or events of default and takes the predetermined action.<sup>7</sup> Of course, this concept requires contract lawyers to design a contract that anticipates as many problematic situations as possible. Moreover, programmers are demanded to link detection mechanisms (the so-called *oracles*) to the appropriate legal consequence without creating frictions with the word and spirit of the contract.

With the growing extent of data tracks, the scope of application for smart contracts is rapidly expanding. For example, a car sharing contract could be made smart by charging the renter a contractual penalty for speeding, or by automatically locking the car if she

<sup>4</sup> In Europe, the law of unfair competition is governed by the Unfair Commercial Practices Directive 2005/29/EC; see Hans-Wolfgang Micklitz, *Unfair Commercial Practices and Misleading Advertising*, in *Understanding Consumer Law* 61-117 (Hans-Wolfgang Micklitz, Norbert Reich & Peter Rott eds., 2009).

<sup>5</sup> A good overview on the legal situation in Europe is provided by the contributions to WILLEM VAN BOOM & MARCO LOOS, *COLLECTIVE ENFORCEMENT OF CONSUMER LAW: SECURING COMPLIANCE IN EUROPE THROUGH PRIVATE GROUP ACTION AND PUBLIC AUTHORITY INTERVENTION* (2007).

<sup>6</sup> The European Union has issued a small claims procedure through its Regulation (EC) No 861/2007, recently amended by Regulation (EU) 2015/2421. With its Directive 2013/11/EU on consumer dispute resolution, the EU switched to an out-of-court approach, obliging its Member States to provide access to free-of-cost conciliation for consumer disputes; critical assessment by Horst Eidenmüller and Martin Engel, *Against False Settlement: Designing Efficient Consumer Rights Enforcement Systems in Europe*, 29 OHIO ST. J. DISP. RESOL. 261-297 (2014).

<sup>7</sup> See, e.g., Alexander Savelyev, *Contract law 2.0: „Smart“ contracts as the beginning of the end of classic contract law*, 20 INF. & COMM. TECHNOL. L. 116, 120-121 (2017); Max Raskin, *The Law and Legality of Smart Contracts*, 1 GEO. L. TECH. REV. 305, 306, 309 (2017); Mark Giancaspro, *Is a „smart contract“ really a smart idea? Insights from a legal perspective*, 33 COMP. L. & SEC. REV. 825, 826 (2017); Kevin Werbach & Nicolas Cornell, *Contracts ex machina*, 67 DUKE L. REV. 313, 330-352 (2017).

illegally drives abroad. Likewise, a mobile phone contract could be complemented by software that observes network availability and issues some sort of a lump-sum compensation if the network becomes unavailable for more than ten minutes. Another scenario could involve a lawyer working on her client's documents in a cloud who receives remuneration only for the time she is actively working in the cloud database. The key advantage of a smart contract in these cases is that the parties to a contract are automatically forced to comply with their contractual duties. To put it in legal Latin: *Pacta non modo sunt servanda sed etiam sunt servata*.

The sixty-four dollar question, however, is: What incentive is there for any contracting party to attach a self-enforcement mechanism to a contract? Here, two cases have to be distinguished. On the one hand, where two contractors meet at eye level and could both be subject to automatic enforcement, there might be a common interest in contract reliability that leads both parties to agree to a smart contract. On the other hand, where there is a considerable power imbalance between both parties, like in consumer contracts, there is little reason for the mightier part to agree to a self-enforcing compliance system. This is exactly the very reason why many companies hesitate to meet civil claims today. Thus, the only way to change their calculus would be a law requiring companies to make use of smart contracts when doing business with consumers. This seems to be inconsistent with the nature of private law, to wit, a law that is not enforced by the state. However, at least in Germany, the government currently considers to do just that: encourage or even compel companies to use smart contracts in an effort to make the enforcement of consumer rights more effective.<sup>8</sup>

### III. SAMPLE CASE: A SMART RAILWAY TRANSPORT CONTRACT

How could such a private law compliance mechanism be applied in practice? The parliamentary group of one of the political parties that formed the current German government offers two concrete examples. In their view, smart contracts could be used to facilitate compensation claims for flight or railway transport contracts.<sup>9</sup>

Thus, imagine a train carrying 100 passengers from Munich to Berlin for 100 € per ticket, the regular travel time being 4 hours. If this train is one hour late, Art. 17(1) (a) of the European Regulation No 1371/2007 on rail passengers' rights and obligations grants passengers a refund of 25% of the ticket price. If usually 10% of all trains are delayed for one hour or more<sup>10</sup> and 10% of all passengers take the trouble to claim their refund, the railway operator will set aside 0.25% of his turnover for satisfying these claims. Now, as soon as

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<sup>8</sup> For further details see Martin Fries, *Smart consumer contracts: The end of civil procedure?*, Oxford Business Law Blog (Mar. 29, 2018, 11:18 AM), <https://www.law.ox.ac.uk/business-law-blog/blog/2018/03/smart-consumer-contracts-end-civil-procedure>.

<sup>9</sup> See the explanation at (Mar. 05, 2018, 09:40 AM), <https://www.spdfraktion.de/themen/verbraucherinnen-verbraucher>.

<sup>10</sup> Delays of two hours or more result in a refund of 50% of the ticket price. To simplify matters, this is not taken into calculation here.

the respective transport contract is connected to smart enforcement software, the enforcement ratio will bounce up to almost 100%. This will make the railway operator increase the provisions from 0.25% to 2.5% of the ticket price, leading *ceteris paribus* to a general price increase of roughly 2%.

A rise in prices in this range will be perceptible and decision-relevant only for few customers. As a matter of fact, this finding considerably changes as soon as the compensation amount increases or is also triggered by minor delays. If, for example, the railway operator had to pay every passenger 50 cents for every minute of delay, the loss of revenue would considerably increase, and the consequential price increase would be quite perceivable. If the average long-distance train is 10 minutes late and the train operator is required to refund 5 €, on average, to every customer, ticket prices would go up respectively. Given this scenario, one might wonder about the advantages of such a system over a world without any delay compensations. Is granting a refund to a customer that she ends up paying for through increased ticket prices a better world.

#### IV. A CONTRIBUTION TO MARKET EFFICIENCY

The main reason for an appropriate compensation of damages in general and transportation delays in particular is fair competition.<sup>11</sup> In a price-oriented market economy, market participants expect the cost of a product or service to reflect a good or service that is free of impairments. If customers pay the full price, but receive only faulty contract performance without a compensation, their product choice and, thus, the functioning of the market will be flawed. Companies will anticipate this mechanism and often interpret it as a complimentary ticket to defer necessary investments in the quality and reliability of products and services.

Of course, those misguided incentives for businesses will sometimes be alleviated by disappointed customers sharing their experience with others and thereby lowering the market expectation of product quality. For example, a frequent rail traveler will soon get a feel for the delay she can expect when traveling by train and, if need be, switch to other means of transportation like planes, buses, or rental cars. However, this mechanism only works in markets where there is considerable competition and with either frequent deal iteration or reliable information exchange between customers, e.g., within the framework of a quality rating system provided by a trading platform. In a market without these features, damage compensation makes an important contribution to properly functioning competition and, thus, market efficiency. This expectation, however, is based on several requirements that a compensation scheme has to meet in order to actually make the market better off.

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<sup>11</sup> This is, of course, a very condensed statement that is not meant to slur the extensive literature on the purposes of compensatory damages; see, e.g., Steven Shavell, *Damages Measures for Breach of Contract*, 11 BELL J. ECON. 466-490 (1980); RICHARD A. POSNER, *ECONOMIC ANALYSIS OF LAW* 128-140 (9. ed. 2014) with further references.

## V. PRECONDITIONS TO AN EFFECTIVE SMART COMPENSATION SCHEME

The best enforcement mechanism cannot achieve a better result than the one determined in the underlying substantive law. The special challenge for smart enforcement mechanisms is their need for simple laws whose legal elements can be easily assessed. Lump-sum compensation laws, like the airline passenger rights laid down in Art. 7 of the European Regulation No 261/2004, are a good example for fairly automatable rules. At the same time, such a simplifying regulatory technique comes at the expense of the merits of every particular case where the appropriate compensation might not only vary, but also be difficult to quantify.

Another aspect to bear in mind is the coding design of the compliance software that is used to cure typical events of default by issuing a money transfer, locking or unlocking the object of agreement, or the like. The software needs to match the underlying contract as far as possible, because if there is any doubt about the default, the contract itself has the final say.<sup>12</sup> However, experience tells us that algorithms always come along with programming errors, be it because of inadvertence or by intention of one party without genuine willingness to comply. This calls for an algorithm check by some neutral agency as long as the enforcement mechanism is not set up on neutral ground like on a blockchain. In the case of passenger rights, this algorithm check could be performed by a government agency like the British Office of Rail and Road, the French Autorité de Régulation des Activités Ferroviaires, or the German Bundesnetzagentur.

Last but not least, it is worth mentioning that a smart compensation scheme can lead to a distortion of competition if some competitors are obliged and others are not. Thus, if a government decides to impose civil law compliance duties only on certain companies while leaving others unregulated, this decision should be based on well-founded criteria. Such criteria could be a factual opacity of product quality, or a monopolistic situation that makes a business insensitive towards customer feedback. Both criteria might indeed most likely be met in the field of passenger transportation as there is low competition on many national and international routes, and even experienced customers can only rarely assess the probability of an on-time arrival.

## VI. CONCLUSION

Smart contracts combine legal obligations with a compliance mechanism. A conventional contract is enhanced with software that automatically issues legal consequences once a pre-specified trigger event is detected. Quite recently, discussions have been initiated about using smart contracts as a means to achieve compliance with private consumer law. It is debatable whether a public law obligation that forces companies to add an automated enforcement component to their consumer contracts goes well with the traditional concept of private rights being dependent on the proactive behavior of the claimant. Anyway,

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<sup>12</sup> Martin Fries, *Smart Contracts: Brauchen schlaue Verträge noch Anwälte?*, ANWBL 86, 87 (2018).

if the use of smart contracts shall be imposed on businesses, the analysis has shown that this approach will be most useful in monopolistic industries where the market does not provide other effective mechanisms to ensure the quality of a product or service.